SBND T-1053 DAQ Workshop

Status and Thoughts on SBND Test Stand area at DAB

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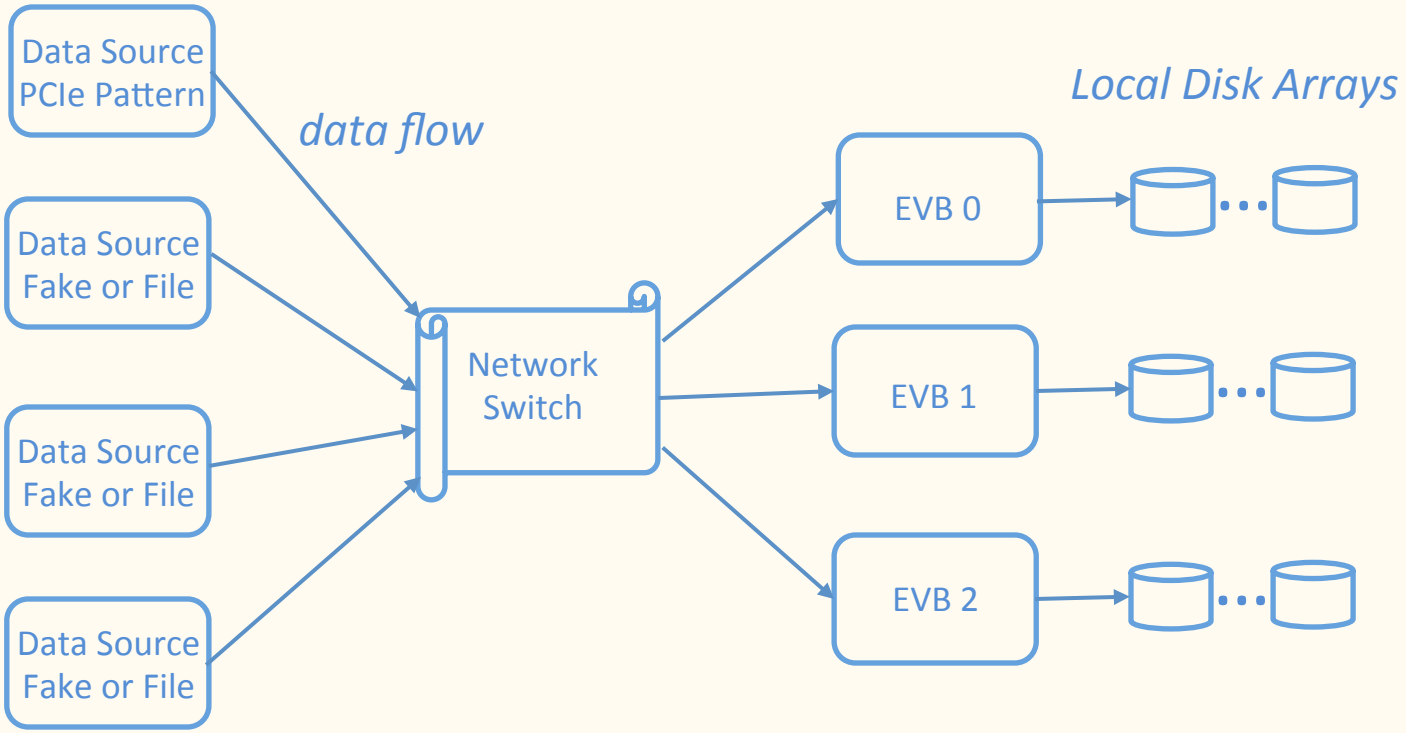
DAB Test Stand Room

- Room 313 at DAB, “The Annex” and nearby high-bay space
  - Geoff Savage directing usage, Neutrino Div control
  - Major cleanup over last few weeks
    - But much still needed…
  - Electrical refurb soon, more outlets including 208V 3ϕ
  - Available for use for Neutrino experiments
    - µBooNE, SBND confirmed users (35t done)
    - Icarus?
- Need to know details of vertical slice chimney test
  - Space and power
  - We expect to have cryogens, liquid nitrogen and/or argon for the baby TPC – would like details
  - Safety reviews take time, need planning

SBND DAQ Test Stand Cluster

- Have recovered existing Dell and Koi servers from FCC
  - Eight dedicated to SBND DAQ sbnd-daq20 … daq27
  - Ready for use – email me if you want an account
  - Also have disk array servers, no plans for them yet
- Housed at DAB floor 2 computing room 210 – northern room
  - Servers quite noisy, try to avoid Annex, but leave open possibility
  - Can run fibers from Annex to D0/2/210 if needed
- Idea: have a multi-computer cluster up and running quickly
  - Start software development testing, especially new ArtDaq event building schemes
  - With 1 Gb ethernet, cannot do realistic through-put tests
  - Do have one Nevis Phenix PCIe to be installed here
- Future: buy modern 10 Gb prototype DAQ servers later 2016

ArtDaq EVB Testing at DAQB



Initial work to concentrate on event distribution and building logic rather than through-put rate and latency measurements

Thoughts on Disk Through-put

- µBooNE limitations are disk writing speed
  - They are looking for simple hardware solution I believe
- SBND provisional plan is to implement ≥ 2 event builders and/or archivers
- Final systems generally have less through-put than you originally estimated, shown time and time again
- I argue this means we should also optimize through-put in the hardware prior to making major purchases of computing
  - SSD vs. HDD – SSDs have made significant advances in reliability for a modest additional cost
  - Either solution, find optimal hardware to write to arrays – tricky issue with controllers, driver arrays and device drivers
- Working Rennie and his group on this issue, in conjunction with their µBooNE efforts

Test Stand Hardware Needs for 2016

- At least one additional optimized EVB server (prefer more)
- One 10 gigE switch for data transport
- One 1 gigE switch slow controls and miscellany
- Racks!
- Infrastructure for rack protection, a la µBooNE
- GPS antenna on roof, coax run to 313 to decoder
- White Rabbit PCIe interface and dedicated synchronous ethernet switch for fanout
- Baby TPC (Austin) presumably with cryo vessel
- Electronics from BNL
- Readout cards from Nevis, including more Phenix PCIe cards

- Exact locations to be negotiated with ND/OSG group